

# **ELEMENTARY MICROWAVE PLASMA SOURCES WITH EXTENDED OPERATING PARAMETERS (FROM LOW TO HIGH- PRESSURES) FOR LARGE AREA DEPOSITION**

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By an appropriate spatial distribution, a set of elementary plasma sources can be used for large area deposition over a low- and very low- pressure range. A real challenge is to obtain uniform depositions at pressures greater than the few Torr when the plasma diffusion is limited by the scale laws. Study of coupling modes and spatial distribution of the power deposition for microwave applicators operating at low pressure allows the prediction of new design of applicators devoted to work at higher pressures. Indeed, the operating range is strongly dependent on the geometrical dimensions, pressure and microwave frequency. As a result, the increase in pressure requires changes to the other two parameters. Different type of couplers (very low to medium pressure, at 2.45 GH and 915 MHz) will be described in terms of plasma performances related to the plasma impedance and coupling modes. Interest of this technology will be pointed out through some examples of applications.